## Second Circular

## ICOPE-15

# International Conference on Power Engineering



## Nov.30th -Dec. 4th 2015, Yokohama, Japan PACIFICO Yokohama Conference Center

Organized and Sponsored by
The Japan Society of Mechanical Engineers
Co-organized by
The Chinese Society of Power Engineering
The American Society of Mechanical Engineers

Supported by
City of Yokohama
Yokohama Convention & Visitors Bureau
Embassy of the Kingdom of the Netherlands











#### **Aims and Scope**

ICOPE (International Conference on Power Engineering) is an international conference targeting a vast area of power and energy systems studies with the exception of nuclear power generation. The conference is drawing interest as an ideal place to present on a variety of studies such as developments of industrial technologies, researches on measuring methods and evaluation tools, and feasibility studies.

"The first JSME-ASME International Conference on Power Engineering" was held in Tokyo in 1993, jointly hosted by The Japan Society of Mechanical Engineers (JSME) and American Society of Mechanical Engineers (ASME). From then onwards, this conference has taken place biennially. In the year 1995, Chinese Society of Power Engineering (CSPE) joined to host the conference in Shanghai.

Thereafter, it has been successfully held in Tokyo (1997), San Francisco (1999), Xian (2001), Kobe (2003), Chicago (2005), Hangzhou (2007), Kobe (2009), Denver (2011), and Wuhan (2013). As a continuation, the twelfth ICOPE conference will be held in Yokohama, Japan in 2015.

The Conference aims to provide a platform for promoting collaborations among professional societies and enhancing technical exchanges in the power engineering community. The Conference will include technical sessions, special lectures, social activities, and exhibition.

#### Organizer

Organized and Sponsored by

The Japan Society of Mechanical Engineers (JSME)

Co-Organized by

The Chinese Society of Power Engineering (CSPE)

The American Society of Mechanical Engineers (ASME)

Supported by

City of Yokohama

Yokohama Convention & Visitors Bureau

Embassy of the Kingdom of the Netherlands

## **Cooperative Societies**

Architectural Institute of Japan

Combustion Society of Japan

The Federation of Electric Power Companies

Gas Turbine Society of Japan

Heat Transfer Society of Japan

The Institute of Electrical Engineers of Japan

Japan Boiler Association

Advanced Cogeneration and Energy Utilization Center JAPAN

Japan Consulting Institute

The Japan Electrical Manufacturers' Association

Japan Energy Association

The Japan Gas Association

The Japan Institute of Energy

Japan Society of Energy and Resources

The Japan Society of Refrigerating and Air Conditioning Engineers

Japan Society of Material Cycles and Waste Management

Japan Valve Manufacturers' Association

The Korean Society of Mechanical Engineers (KSME)

**New Energy Foundation** 

Turbomachinery Society of Japan

The Society of Chemical Engineers, Japan

The Society of Heating, Air-conditioning and Sanitary Engineers of Japan

The Society of Instrument and Control Engineers

Thermal and Nuclear Power Engineering Society

Japan Coal Energy Center

Japan Solar Energy Society

Japan Wind Energy Association

The Japan Institute of Marine Engineering

The Society of Material Science, Japan

#### **Scope and Topics**

ICOPE-15 aims to provide a platform for promoting collaborations among professional societies and enhancing technical exchanges in the power engineering community. The Conference program consists of 20 tracks categorized into 6 groups, which covers both fundamental and applied technologies in power engineering.

#### Group 1: Large-scale energy systems

Power Generation Systems, Fuel Production and Utilization, Advanced Combustion Technology,

**High-Efficiency Power Generation** 

#### **Group 2: Progress in power generation components**

Boilers, Steam Turbines, Gas Turbines, Generators, Components, Equipment and Auxiliaries

#### Group 3: New era of distributed energy and utilization systems

Distributed Energy Systems, Energy Storage and Load Leveling, Heat Pump Systems, Hydrogen and Fuel Cells

#### Group 4: Renewable energy

Renewable Energy

#### **Group 5: Techno-Socio-Economic topics in energy systems**

Operations and Maintenance, Environmental Protection, Economic and Environmental Aspect

#### Group 6: Fundamental technologies in power engineering

New Materials for Energy Systems, Experimental and Measuring Technique, Thermal Hydraulics & CFD

The technical program organized by the following contributors:

Kazuki Abe (Mitsubishi Hitachi Power Systems, Ltd.)

Yoshiharu Amano (Waseda University)

Takuto Araki (Yokohama National University)

**Tomohiro Asai** (Mitsubishi Hitachi Power Systems, Ltd.)

Itaru Chida (Toshiba Corporation)

Motonari Haraguchi (Mitsubishi Hitachi Power Systems, Ltd.)

Yuichi Honda (City of Yokohama)

Yasuo Kabata (Toshiba Corporation)

Eiichi Kouda (CRIEPI)

Hiroyuki Kumano (Aoyama Gakuin University)

Koji Matsubara (Niigata University)

Kazuyoshi Miyagawa (Waseda University)

Shoji Mori (Yokohama National University)

Takao Nakagaki (Waseda University)

Hideki Nakagome (Chiba University)

Toshihiko Nakata (Tohoku Univ.)

Teruyuki Okazaki (Mitsubishi Hitachi Power Systems, Ltd.)

**Shigeki Senoo** (Mitsubishi Hitachi Power Systems, Ltd.)

Tadashi Tanuma (Teikyo University)

Naoki Shibukawa (Toshiba Corporation)

**Tatsuya Ohira** (Mitsubishi Heavy Industries, Ltd.)

Yuso Oki (CRIEPI)

Toru Sawai (Kinki University)

Rob Stroeks (Embassy of the Netherlands)

Katsunori Tsuchiya (Nissan Motor Co., Ltd.)

Shuich Umezawa (Tokyo Electric Power Co., Inc.)

**Tetsuya Wakui** (Osaka Prefecture University)

(Alphabetical order)

## **Conference Schedule**

November 30, Monday: Registration (15:00-)

Welcome Reception (18:00 - 20:00)

Exhibition (17:00-)

December 1st, Tuesday: Opening Address and Plenary Lecture

Technical Session, Exhibition

December 2nd, Wednesday: Technical Session, Exhibition

Official Conference Banquet (18:30 - 20:30)

December 3rd, Thursday: Technical Session, Exhibition
December 4th, Friday: Technical Tour (8:40 - 16:30)

## **Plenary Lectures**

#### Dr. Akira Tateno (IHI Corporation)

"Renewable Energy Development Efforts in IHI Corporation"



#### Prof. Zhihua Wang (Zhejiang Univ.)

"Challenge of Coal Combustion and Technology Development for Multi-pollutant Emission Control"



#### Mr. Frank L. Michell (American Electric Power)

"Market Trends and Electricity Demand in the United States"



#### Prof. Piero Colonna (Delft Univ. of Tech.)

"Organic Rankine Cycle Power Systems: from the Concept to Current Technology, Applications, and an Outlook to the Future"



## **Program**

The Technical Program is available on the ICOPE-15 web site, <a href="http://www.jsme.or.jp/pes/ICOPE-15/">http://www.jsme.or.jp/pes/ICOPE-15/</a> The Conference Program at a Glance is attached on this circular.

## Instructions for presenters

Presenters' slide shows should be performed using a common application software (e.g. MS-Office PowerPoint or Adobe Acrobat) provided by their own devices.

A laptop computer installed with MS-Office PowerPoint 2013 and Adobe Acrobat XI on MS-Windows 7 will be provided in all rooms, and all presenters can also choose to use it copying their presentation files via USB Memory sticks.

A projector with **ONLY D-Sub 15 pin type display cable** will be available in all rooms. If using your own devices (e.g. laptop computers or tablet devices) with another display port (e.g. HDMI or mini-display port), please **DO NOT forget** display adaptors. ICOPE-15 secretariat office never provide display adaptors.

All presenters should confirm that their presentation slide shows are properly projected in the conference room in advance before their sessions start. Practice room on the 4th floor will be available during the conference. There is a same laptop computer in the practice room.

The allocated time for each presentation is **25 minutes**, which consists of **approx**. **20 minutes for presentation** including preparation and **5 minutes for discussion**. The assistant in the conference room rings first, second and third bells after 15, 20 and 25 minutes from the start of each presentation, respectively.

## **Technical Sessions' Program at a Glance**

1st December (	Tue.) - DAY 1						
8:10 - 9:00			Regis	stration			
9:00 - 9:10		Opening					
9:10 - 9:55	Opening Plenary Lectures	Plenary 1: Mr. Akira Tateno (IHI Corporation)  "Renewable energy development efforts in IHI Corporation"					
9:55 - 10:40		Plenary 2: Prof. Zhihua Wang (Zhejiang University)  "Challenge of coal combustion and technology development for Multi-pollutant emission control"					
10:40 - 11:25		Plenary 3: Mr. Frank L Michell (American Electric Power) "Market Trends and Electricity Demand in the United States"					
11:25 - 12:10		Plenary 4: Prof. Pierro Colonna (Delft Univ. of Technology) "Organic Rankine cycle power systems: From the concept to current technology, applications, and an outlook to the future"					
12:10 - 12:20		Announcement					
12:20 - 14:00			Lu	nch			
	Room A: Fundamental technologies in power engineering	Room B: New era of distributed energy and utilization systems	Room C: Progress in power generation components	Room D: Renewable energy and related technologies	Room E: Techno-Socio- Economic topics in energy systems	Room F: Large-scale energy systems	
14:00 - 14:25 14:25 - 14:50 14:50 - 15:15	Thermal Hydraulics & CFD (1)	Distributed Energy Systems (1)	Gas Turbines (1)	Renewable Energy (1)	Operations and Maintenance (1)	New Materials for Energy Systems (1)	
15:15 - 15:40 15:40 - 16:00		ļ	Coffee	Break	!	ļ	
16:00 - 16:25	Thermal Hydraulics & CFD (2)	Distributed Energy Systems (2)	Gas Turbines (2)	Renewable Energy (2)	Operations and Maintenance (2)	New Materials for Energy Systems (2)	
17:15 - 17:40							
2nd December	(Wed.) - DAY 2						
8:10 - 8:30				tration			
8:30 - 8:55			Keynote: Steam Turbine				
	Thermal Hydraulics & CFD (3)	High-Efficiency Power Generation	Steam Turbines (1)	Renewable Energy (3)	Environmental Protection (1)	Fuel Production and Utilization (1)	
10:10 - 10:30	Coffee Break						
10:30 - 10:55 10:55 - 11:20 11:20 - 11:45	Thermal Hydraulics & CFD (4)	Energy Storage and Load Leveling	Steam Turbines (2)	Renewable Energy (4)	Environmental Protection (2)	Fuel Production and Utilization (2)	
11:45 - 12:10 12:10 - 12:35 12:35 - 14:00	(4)	Load Leveling	Lu	nch	10.0000011(2)	Advanced Combustion Technology (1)	
14:00 - 14:25						A di mana a d	
	Thermal Hydraulics & CFD (5)	Heat Pump Systems (1)	Steam Turbines (3)	Renewable Energy (5)	Environmental Protection (3)	Advanced Combustion Technology (2)	
15:40 - 16:00			Coffee	Break			
16:50 - 17:15	Thermal Hydraulics	Heat Pump Systems (2)	Steam Turbines (4)	Renewable Energy (6)	Environmental Protection (4)	Advanced Combustion	
17:15 - 17:40		( )		(0)		Technology (3)	
3rd December						Technology (3)	
8:10 - 8:30			Regis	tration		Technology (3)	
8:10 - 8:30 8:30 - 8:55 8:55 - 9:20 9:20 - 9:45		Components, Equipment and Auxiliaries (1)	Regis Steam Turbines (5)		Environmental Protection (5)	Power Generation Systems (1)	
8:10 - 8:30 8:30 - 8:55 8:55 - 9:20 9:20 - 9:45 9:45 - 10:10	Thu.) - DAY 3  Thermal Hydraulics	Components,	Steam Turbines (5)	tration  Renewable Energy (7)	Environmental	Power Generation	
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8:10 - 8:30 8:30 - 8:55 8:55 - 9:20 9:20 - 9:45 9:45 - 10:10 10:10 - 10:30 10:30 - 10:55 10:55 - 11:20 11:20 - 11:45 11:45 - 12:10 12:10 - 12:35 12:35 - 14:00 14:00 - 14:25 14:25 - 14:50 14:50 - 15:15 15:15 - 15:40 15:40 - 16:00 16:00 - 16:25 16:25 - 16:50	Thu.) - DAY 3  Thermal Hydraulics & CFD (7)  Experimental and Measuring Technique (1)  Experimental and Measuring	Components, Equipment and Auxiliaries (1)  Components, Equipment and Auxiliaries (2)  Hydrogen and Fuel	Steam Turbines (5)  Coffee  Boilers (1)  Lu  Boilers (2)	Renewable Energy (7)  Break Renewable Energy (8)  nch Renewable Energy (9)	Environmental Protection (5)  Generators  Economic and Environmental Aspect (1)  Economic and Environmental	Power Generation Systems (1)  Power Generation Systems (2)  Power Generation	
8:10 - 8:30 8:30 - 8:55 8:55 - 9:20 9:20 - 9:45 0:45 - 10:10 10:10 - 10:30 10:30 - 10:55 10:55 - 11:20 11:20 - 11:45 11:45 - 12:10 12:10 - 12:35 12:35 - 14:00 14:00 - 14:25 14:50 - 15:15 15:15 - 15:40 15:40 - 16:00 16:00 - 16:25	Thu.) - DAY 3  Thermal Hydraulics & CFD (7)  Experimental and Measuring Technique (1)  Experimental and Measuring Technique (2)	Components, Equipment and Auxiliaries (1)  Components, Equipment and Auxiliaries (2)  Hydrogen and Fuel Cells (1)	Steam Turbines (5)  Coffee  Boilers (1)  Lu  Boilers (2)	Renewable Energy (7)  Break  Renewable Energy (8)  nch  Renewable Energy (9)  Break  Renewable Energy	Environmental Protection (5)  Generators  Economic and Environmental Aspect (1)  Economic and	Power Generation Systems (1)  Power Generation Systems (2)  Power Generation Systems (3)	

Welcome Reception: start at 18:00 on Monday, 30th Nov. on the 5th floor of the PACIFICO Conference Center. Banquet: start at 18:30 on Wednesday 2 December at InterContinental Yokohama Grand Ball Room (3rd Floor).

#### **Proceedings**

All accepted papers will be published in the Conference Proceedings on a **CD-ROM** that will be available at the Conference site. **All accepted and presented papers** in ICOPE-15 will be indexed by **Ei Compendex**.

The accepted papers will be endorsed for publication in the **Mechanical Engineering Journal** on reviewers' recommendation.

## **Important Reminder**

In the session room, PICTURES and VIDEO are PROHIBITED.

## Conference Fees and Registration

Participation is open to all persons interested in this conference. All participants are requested to make a registration to the ICOPE-15.

#### Conference Registration Fees

lovember 7 <sup>th</sup> or	Regular Registration until November 7 <sup>th</sup> or	Category	
	On-site Registration		
4,000 JPY	74,000 JPY	JSME Member: Regular (includes authors and member of cooperative societies)	
4,000 JPY	84,000 JPY	JSME Non-Member: Regular	
4,000 JPY	74,000 JPY	CSPE/ASME Member: Regular	
4,000 JPY	34,000 JPY	Student	
1,000 JPY	1,000 JPY	Banquet (Dec. 2nd)	
0,000 JPY	10,000 JPY	Invitation Letter for Visa Application	
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(JPY: Japanese Yen)

The registration fee for Regular Participants and Student includes:

Session Participation, Conference Kit, Welcome Party, Coffee Break.

The registration fee for Accompanying Persons includes:

Welcome Party, Coffee Break.

The on-site registration desk will start at 15:00 on Monday, 30th Nov. and continuing throughout the conference. Payment of on-site registration must be made in **cash in JPY** or by **credit card (VISA / Master Card)**.

#### Credit Card Payment:

Payments are accepted only through VISA and Master Card.

Payment will be made in a single lump-sum.

## **Welcome Reception**

The welcome Reception will be start at 18:00 on Monday, 30th Nov. at room 503 on the 5th floor of the Yokohama PACIFICO Conference Center.

## Official Conference Banquet

The official conference banquet will be held at InterContinental Yokohama Grand Ball Room (3rd Floor) adjacent to the conference venue at 18:30-20:30 on Wednesday 2 December.

#### **Technical Tour**

The technical tour will be held on December 4th. Visiting Isogo Thermal Power Plant (J-POWER, USC coal fired power plant), Hakkeijima Sea Paradise and Yokohama Blue Carbon Project. Lunch is taken at Hakkeijima, meal fee is not included.

It will start at 8:40 from PACIFICO Yokohama, end at 16:30 at PACIFICO Yokohama. Skirts and high heel shoes is prohibited for safety reasons.

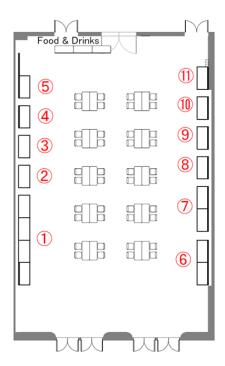
<sup>\*</sup>Fees for accompanying person (up to 2 persons)

RegistrationBanquet5,000 JPY (per person)10,000 JPY (per person)

<sup>\*\*</sup>Inclusions:-

#### **Exhibitions**

The Exhibition is held on Room 501 of fifth floor during the conference period. Exhibition booths of leading companies in the energy and environmental industries are waiting for your visit.



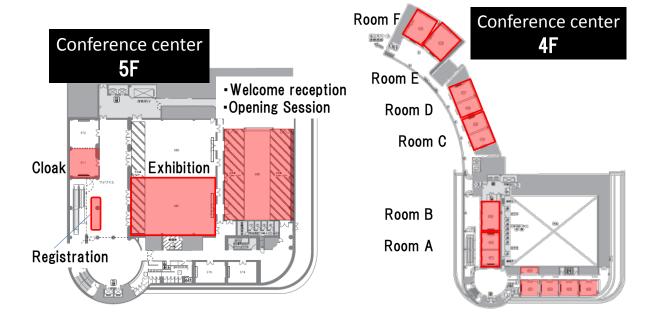
	List of exhibitors
1	MITSUBISHI HITACHI POWER SYSTEMS, LTD.
2	NUMECA JAPAN CO., LTD.
3	PANASONIC CORPORATION
4	MIURA CO., LTD.
5	Embassy of the Kingdom of the Netherlands
6	IHI CORPORATION
7	TOSHIBA CORPORATION
8	TOKYO GAS CO., LTD.
9	ARCHIVEWORKS CO., LTD.
10	TAIHEI DENGYO KAISHA, LTD
11	DIAMOND ENGINEERING CO., LTD.

## **Venue: PACIFICO Conference Center**

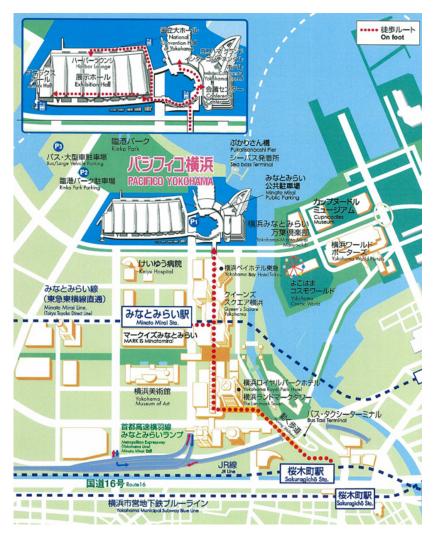
PACIFICO Yokohama, a world-class convention complex is located on the waterfront of "Minato Mirai 21", a futuristic town in Yokohama.

PACIFICO Yokohama: Yokohama city, Kanagawa, JAPAN 1-1-1 Minato Mirai, Nishi-ku, Yokohama 220-0012, Japan http://www.pacifico.co.jp/english/index.html





http://www.pacifico.co.jp/english/facility/accessmap.html





#### Yokohama

Yokohama is Japan's second largest city, located less than half an hour south of Tokyo by train. Yokohama is known for its international atmosphere, based on its unique history as Japan's first "treaty port." Yokohama's port was one of the first to be opened to foreign trade in 1859. Consequently, Yokohama quickly grew into one of Japan's major cities. Until today, Yokohama remains popular among expats, has one of the world's largest chinatowns and preserves some former Western residences.

#### Organized Committee

Organizing Committee

Chairman Kazuaki Kama (IHI Corporation)

Co-Chairmen Masashi Akiba (Thermal and Nuclear Power Engineering Society)

Masato Nobutoki (City of Yokohama)

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Atsushi Soda (The Federation of Electric Power Companies of Japan)

Hiroshi Suzuki (Kobe University)

Takeshi Takahashi (Central Research Institute of Electric Power Industry)
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Satoshi Takase (Thermal and Nuclear Power Engineering Society)

Yasuyuki Takata (Kyushu University)
Tetsuaki Takeda (Yamanashi University)
Masahiro Takei (Chiba University)

Kenichiro Takeishi (Tokushima Bunri University)

Nobuyuki Takenaka (Kobe University)

Kazumi Tanimoto (National Institute of Advanced Industrial Science and Technology)

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Kohei Tsuji (Kyushu Electric Power Co., Inc.)

Hideki Tsukuda (Electric Power Development Co., Ltd. (J-POWER))

Takaharu Tsuruta (Kyushu Institute of Technology)
Atsushi Tsutsumi (The University of Tokyo)
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Masafumi Tsukagoshi (City of Yokohama)
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Ryo Takeya (Tokyo Gas Co., Ltd.) Katsunori Tsuchiya (Nissan Motor Co., Ltd.) Satoshi Hatayama (Nissan Motor Co., Ltd.)

#### **Contact**

Official Website: http://www.jsme.or.jp/pes/ICOPE-15/

Regarding General Information and Programme : icope15@jsme.or.jp
Regarding Registration: C/o ISS, INC. : icope15-reg@issjp.com

Yokohama Visitor's Guide : http://www.yokohamajapan.com/